**A bl ue hou se is**

**made of bl ue bric k**

**s. A y el lo w ho use is m ade of ye llo w br i cks. A re**

**d**

**h ou se is m ade of r**

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**re en h o use b e mad e o f ?**

1. Hello puny agents. It is I, Dr. Gasz, your arch-nemesis!! I just trapped you in a 2 x 2 x 2 metre room with a pressure of 75kPa. I just shrunk the room to half the size. What is the current pressure? Muahahaha!!!!

2. Oh, so you thought that was easy? Let’s turn up the heat. You just got yourself a thirty-six degree temperature increase from your once-comfortable 27˚C. Let’s see how you like it now!! What is the pressure??

3. Well, so you got through that hurdle, but I am shrinking the room even further. Now it is only 1.8m3!!! What is your temperature?? Burning up?

4. So, you think you could survive all that? Let me tell you. You better get this one. One of the members of your group may not be who they said they are. How many moles (of gas) are in the room?? ?? (Note: R = 8.31 J/molK, kPa must be converted to Pa)

5. Well, agents, seems like you are managing to avoid my many obstacles. No fear, I just added a 0.2m3 container of 450kPa of NERVE GAS! See if you can handle it! What is the pressure now? Muahahaha

6. It seems like you’ve gotten past my gas traps but there is no way you will ever find out the secret passcode to escape the facility! Beware of the countdown clock. Your end is near!!